

Appl. No. 10/662,029
Amdt. Dated June 28, 2007
Reply to Office Action of May 17, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A pulse width modulation current adjustment apparatus, comprising:

a triangle wave generator for generating a triangle wave voltage signal;

a modulation voltage source configured for providing a modulation voltage signal;

a comparator;

a field effect transistor;

a power supply;

a first resistor; and

a second resistor;

wherein the triangle wave voltage signal has a plurality of rising portions and a plurality of declining portions, the triangle wave voltage signal only ~~comprises~~ consists of odd harmonics such that a percentage of high frequency harmonics of the triangle wave voltage signal is low; the triangle wave signal and the modulation signal are input to the comparator, and an output of the comparator is connected to a gate terminal of the field effect transistor, the first resistor is connected between the power supply and a source terminal of the field effect transistor, and a drain terminal of the field effect transistor outputs a pulse width modulation current signal through the second resistor to a load.

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Claim 2 (previously presented): The pulse width modulation current adjustment apparatus as described in claim 1, wherein the triangle wave signal is a symmetric triangle wave signal.

Claim 3 (previously presented): The pulse width modulation current adjustment apparatus as described in claim 1, wherein the field effect transistor is an N-channel enhancement-type field effect transistor.

Claim 4 (previously presented): The pulse width modulation current adjustment apparatus as described in claim 1, wherein the field effect transistor is a P-channel enhancement-type field effect transistor.

Claim 5 (previously presented): The pulse width modulation current adjustment apparatus as claimed in claim 1, wherein the field effect transistor is an N-channel depletion-type field effect transistor.

Claim 6 (previously presented): The pulse width modulation current adjustment apparatus as claimed in claim 1, wherein the field effect transistor is a P-channel depletion-type field effect transistor.

Claim 7 (currently amended): A method of making a pulse width modulation current signal, comprising steps of:

providing a triangle wave generator for generating a triangle wave voltage signal, the triangle wave voltage signal having a plurality of rising portions and a plurality of declining portions, and the triangle wave voltage signal ~~only comprising~~ consists of odd harmonics such that a percentage of high frequency harmonics of the triangle wave signal is

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low;

comparing the triangle wave voltage signal with a modulation voltage signal supplied by a modulation voltage signal through a comparator to generate a digital pulse voltage signal;

outputting the digital pulse voltage signal to a gate terminal of a field effect transistor in order to control the field effect transistor;

connecting a power supply to a source terminal of the field effect transistor via a first resistor; and

connecting a load to a drain terminal of the field effect transistor via a second resistor in order to generate and output a pulse width modulation current signal at the load.

Claim 8 (currently amended): A triangle wave generator used in a pulse width modulation current adjustment apparatus, comprising:

a first operational amplifier (15);

a front resistor (23) electrically connecting a negative terminal of the first operational amplifier (15) to ground;

a first feedback resistor (21), a second feedback resistor (22) and a first current limiting resistor (24) electrically connecting to a positive terminal of the first operational amplifier (15) so as to form a zero-crossing comparator;

a second operational amplifier (16), a second current limiting resistor (18) and a capacitor (17) together forming an integrator;

a back grounding resistor (25) electrically connected a positive terminal of the second operational amplifier (16) to ground; and

an output of the first operational amplifier (15) electrically connected to said positive terminal of the first operational amplifier (15) via said first current limiting resistor (24) and said first feedback resistor (21), an

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output of the second operation amplifier (16) electrically connected to the negative terminal of the second operational amplifier (16) via the capacitor (17) and also electrically connected to the positive terminal of the first operational amplifier (15) via the second feedback resistor (22), the output of the second operation amplifier (16) outputting a triangle wave voltage signal, the triangle wave voltage signal having a plurality of rising portions and a plurality of declining portions, and the triangle wave voltage signal only comprising consists of odd harmonics such that a percentage of high frequency harmonics of the triangle wave voltage signal is low.